Appl. No. 10/625,348 Response Dated October 7, 2005 Reply to Office Action of July 8, 2005

Amendments to the Claims:

This listing of the claims will replace all prior versions and listings of claims in this application.

- 1. (canceled)
- 2. (currently amended) The method of claim [[1]] 10, further comprising retaining at least a portion of the non-wetting agent on the surface.
- 3. (currently amended) The method of claim [[1]] <u>10</u>, wherein the pressurized fluid is at a <u>selected</u> temperature greater than room temperature.
- 4. (previously presented) The method of claim 3, wherein the temperature of the fluid is at the melting temperature of the molten metal.
- 5. (currently amended) The method of claim [[1]] 10, wherein the fluid is a gas selected from the group consisting of air, argon, nitrogen, hydrocarbon gas including methane and acetylene, and mixtures thereof.
- 6. (currently amended) The method of claim 1 A method for removing molten metal from a surface having molten metal adhering thereto, comprising applying a pressurized fluid to the adherent molten metal or to the surface such that the molten metal is removed from the surface; wherein the fluid is a non-wetting agent for the metal or carries a non-wetting agent for the metal, wherein the fluid is a liquid selected from the group consisting of molten zinc, lead, tin, antimony, mixtures or alloys thereof, and salts.
- 7. (currently amended) The method of claim [[1]] 10, wherein the fluid is a non-wetting agent for the metal.
- 8. (currently amended) The method of claim [[1]] 10, wherein the fluid is a carrier for a non-wetting agent.
- 9. (canceled)
- 10. (currently amended) The method of claim 9, A method for removing molten metal from a surface having molten metal adhering thereto, comprising applying a pressurized fluid to the

2

combinations thereof.

adherent molten metal or to the surface such that the molten metal is removed from the surface; wherein the fluid is a non-wetting agent for the metal or carries a non-wetting agent for the metal, wherein the molten metal comprises aluminum or alloys thereof, and wherein the non-wetting agent is selected from the group consisting of boron nitride, barite, cryolite, fluorite, aluminum titanate, barium carbonate, wollastonite, calcium silicate, sodium chloride/potassium chloride mixture, flour, talc, graphite, coal, coke, and—other carbon, and mixtures and

- 11. (original) The method of claim 10, wherein the non-wetting agent is carbon.
- 12. (original) The method of claim 11, wherein the carbon is amorphous carbon.
- 13. (previously presented) The method of claim 10, wherein applying a pressurized fluid comprises applying the fluid from an acetylene torch to the adherent molten aluminum or to the surface.
- 14. (previously presented) The method of claim 10, wherein applying a pressurized fluid comprises applying pressurized air with entrained carbon to the molten aluminum or to the surface.
- 15. (currently amended) The method of claim [[1]] 10, wherein the surface comprises thermocouple protection tubes, heater immersion tubes, riser tubes, dies/molds, engine components, turbine components, brakes, clutches, armor, electronic packaging material, thermal management material, or combinations thereof.
- 16. (original) A method for cleaning a metal/ceramic composite material that has been formed by contacting a ceramic body with a molten metal and then removing the metal/ceramic composite from the molten metal, comprising applying a pressurized fluid to a surface of the metal/ceramic composite or to molten metal adhering to the surface of the composite to remove the adherent molten metal, wherein the fluid is a non-wetting agent for the metal or carries a non-wetting agent for the metal.
- 17. (currently amended) The method of claim 16, wherein the ceramic comprises a metal or silicon portion and a non-metal portion and is selected from the group consisting of silica,

3

mullite, titania (TiO₂), titanium carbide (TiC), zirconia (ZrO₂), zirconium carbide (ZrC), zirconium nitride (ZrN), silicon nitride (Si₃N₄), silicon carbide (SiC), magnesium oxide (MgO), titanium carbide (TiC), aluminum nitride (AlN), aluminum oxide (Al₂O₃), titanium diboride (TiB₂), analogous sulfides, and any other ceramic in which the non-metal portion has a greater affinity for atoms of the molten metal than for the metal or silicon portion of the ceramic, and compounds and mixtures thereof.

- 18. (original) The method of claim 16, wherein the metal is selected from the group consisting of aluminum, iron, nickel, cobalt, magnesium, titanium, tantalum, tungsten, yttrium, niobium, and mixtures and alloys thereof.
- 19. (original) The method of claim 16, wherein the ceramic comprises <u>a</u> fused silica and the metal comprises aluminum or an aluminum alloy.
- 20. (original) The method of claim 19, wherein the non-wetting agent is carbon.
- 21. (original) The method of claim 20, wherein applying a pressurized fluid comprises applying the fluid stream from an acetylene torch to the adherent molten aluminum or to the surface.
- 22. (original) The method of claim 20, wherein applying a pressurized fluid comprises applying pressurized air with entrained graphite or another carbon form to the adherent molten aluminum or to the surface.
- 23. (original) The method of claim 16, further comprising providing for continued removal of molten metal that exudes from the ceramic/metal composite material after contact of the ceramic body by the molten metal.
- 24. (original) The method of claim 23, wherein continued removal of molten metal comprises retaining at least some of the non-wetting agent on the surface.
- 25. (canceled).
- 26. (currently amended) The method of claim 25, A method for removing molten metal from a surface having molten metal adhering thereto, comprising applying a non-wetting agent for the metal to the adherent molten metal or to the surface such that the molten metal is removed from

Appl. No. 10/625,348
Response Dated October 7, 2005

Reply to Office Action of July 8, 2005

the surface, wherein applying a non-wetting agent comprises wiping the surface with a refractory cloth coated with graphite or powdered carbon.

- 27. (currently amended) The method of claim 25 26, further comprising retaining at least some of the non-wetting agent on the surface.
- 28. (currently amended) The method of claim 25, A method for removing molten metal from a surface having molten metal adhering thereto, comprising applying a non-wetting agent for the metal to the adherent molten metal or to the surface such that the molten metal is removed from the surface, wherein the surface comprises a metal/ceramic composite.
- 29. (original) The method of claim 28, wherein the metal/ceramic composite comprises fused silica, and the molten metal comprises aluminum alloy.
- 30. (previously presented) The method of claim 14, wherein the carbon is graphite.

5

31. (new) The method of claim 28, further comprising retaining non-wetting agent on the surface.